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基于期权视角的海外市场拓展的双目标多项目多期优化随机机会约束模型

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The Bi-objective Stochastic Chance-Constrained Combination Optimization Model of Multi-Project and Multi-Item Overseas Market Development Based on the Perspective of Real Options

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摘要 随着经济全球化趋势进程的加快,海外市场资源优化配置逐步成为理论研究和实务关注的热点,而已有研究却鲜有涉及海外目标市场开拓的资源配置问题。本文在对此问题进行分析的基础上,提出了基于期权度量的收益目标模型和基于信息熵度量的风险目标模型,构建了随机环境下基于现金流供需约束的双目标多项目多期优化0-1机会约束优化模型。在吸取NSGA-Ⅱ算法思想的基础上对DE算法进行了改进,设计了求解此类配置问题的Pareto解算法,比较了伸缩因子分别为固定数和随机数时差分算法的性能,得出后者算法性能稍微优于前者。

关键词： 随机环境 期权视角 海外市场开拓 多项目多期优化 Pareto解 改进的DE算法

Abstract: This paper presents a new stochastic chance-constrained 0-1 integer multi-project multi-item investment combination programming model for investigating overseas investment.The proposed model includes two objectives with stochastic constraints on the demanded cash not more than supported cash to construct a 0-1 integer programming model.On the one hand,the risk value will be measured by negative entropy;on the other hand,the pursued value objective will be composed of two parts including classical NPV and the corresponding realoption value for any it em of any project.Then,how to use DE to solve the optimization model with a small modification of const rain-thandling rule after absorbing some idea of NSGA-II is proposed.Asimulation experiment is employed to illust rate the application of the proposed model to get the Pareto-optimal solutions by applying the modified algorithm DE,and the performance evaluation of DE with random flexing factor and fixed number flexing factor is compared.The performance of the former is better than that of the latter.

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